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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,858	10/31/2003	Dong-Sil NMN Park	132855	2857

30952 7590 08/16/2005

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EXAMINER

JOLLEY, KIRSTEN

ART UNIT PAPER NUMBER

1762

DATE MAILED: 08/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/605,858

Applicant(s)

PARK ET AL.

Examiner

Kirsten C. Jolley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-26 and 28-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9-26 and 28-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/21/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The IDS filed March 21, 2005 has been considered. New claim rejections are made over the newly cited reference of Galmiche et al. included in the IDS. This action is made non-final and the finality of the prior Office action has been withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 9, 11-12, 21-25, 28, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Galmiche et al. (US 3,900,613).

Galmiche et al. discloses a process of forming a diffusion coating on a component comprising the steps of: dissolving ammonium chloride activator in a solvent to form an activator solution; mixing a particulate donor material containing a coating element with the activator solution to form an adhesive mixture having a cement-like, formable and malleable consistency, wherein the adhesive mixture does not contain an extraneous binder and the donor material and filler are cohered solely by the dissolved activator; applying the adhesive mixture to a surface of the component; and heating the component to a temperature sufficient to vaporize and react the activator with the coating element of the donor material to form a reactive vapor of the coating element, the reactive vapor reacting at the surface of the component to form a

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diffusion coating containing the coating element (col. 2-3). Example I comprises a step of dissolving ammonium chloride activator in solvent. While the mixture of Galmiche et al. additionally includes a surface active agent such as oleic acid, it is noted that such a surface active agent would not cohere the filler and donor materials. To the contrary, Galmiche et al. teaches that the surface active agent is responsible for conferring thixotropic properties on the mixture. Therefore, the dissolved activator solution must solely cohere the filler and donor materials.

As to claims 2 and 22, Galmiche et al. teaches a step of drying the solvent in col. 4, lines 19-23.

As to claims 3-4 and 23-24, Galmiche et al. teaches that the coating element is aluminum, and the donor material may be an alloy of aluminum such as CrAl (col. 3, lines 10-13, and Example II).

As to claims 9 and 28, Galmiche et al. teaches that the substrate component may be a gas turbine engine component formed of superalloy (Examples III and IV).

As to claim 12, it is the Examiner's position that since the coating mixture in the process of Galmiche et al. is cementitious in its texture, and is in some cases applied by vibrating the substrate, a completely uniform thickness of the mixture will not be achieved.

As to claims 11 and 30, it is noted that the substrates used in the Examples are make-new components, and the treated surfaces constitute limited surface portions of the components.

Claim Rejections - 35 USC § 103

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4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6-7, 10, 13-20, 26, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galmiche et al.

As to claims 6, 13-15, and 26, Galmiche et al. lacks a teaching of using water as the solvent. Galmiche et al. teaches using solvents that are absolute alcohols whose boiling point is preferably located between 80 C and 120 C (col. 3, lines 36-42). It is noted that water is chemically similar to alcohols and has a boiling point of 100 C, within the specified boiling point range. It would have been obvious to have used water as the solvent in the process of Galmiche et al. with the expectation of similar and successful results since water is inexpensive and is similar to alcohols and has a boiling point in the specified range.

As to claim 7, Galmiche et al. teaches that the filler has a high heat of formation soluble in certain acids, with magnesia as the preferred filler material (col. 3, lines 14-22). It is noted that alumina is a known filler material that performs in a manner similar to magnesia. It is the Examiner's position that it would have been obvious to have used alumina filler, or other similar fillers, in place of magnesia filler with the expectation of similar results since the two materials are often equivalent and exchangeable filler materials.

As to claims 10 and 29, Galmiche et al. lacks a teaching that the surface of the component substrate is a repaired surface region. The Examiner notes that it is well known in the gas turbine engine art to repair coatings on gas turbine engine components because the

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components are expensive and it is more economical to repair them than to repeatedly produce new components. It would have been obvious for one having ordinary skill in the art to have performed the process of Galmiche et al. on a repaired surface region with the expectation of similar results.

As to claim 18, Galmiche et al. teaches heating at a temperature of 1060-1065 C in Example I (col. 6, lines 60-61).

As to claim 16, Galmiche et al. does not teach use of metal halide activators. However, it would have been obvious for one having ordinary skill in the art to have substituted or used in addition other similar, known halide activators with the preferred ammonium halide activator in the process of Galmiche et al. with the expectation of similar and equivalent results, in the absence of a showing of criticality.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


It is noted that newly cited reference JP 4-131365 A in the IDS of March 21, 2005 discloses the use of a diffusion coating mixture comprising metallic powder, metal oxides buffer/filler, activator, and solvent. The mixture does not include the use of a binder, and appears in Figure 1 of JP '365 to have a paste-like consistency.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Tuesday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kirsten C Jolley
Primary Examiner
Art Unit 1762

kcj